PARENT / LEGAL GUARDIAN INFORMATION SHEET

Information About Your Child's Participation in a Research Study

Please read this information before deciding. You may ask questions, discuss the study with your child, and take time to make a decision. Your child must also agree to participate.

Study ID	PED-VR-EMG-2026-01
Official title	Acute Effects of Immersive Virtual Reality Exergaming Versus Matched Non-Virtual-Reality Exercise on Reaction Time, Functional Performance, Postural Control, and Neuromuscular Activity in Children Aged 10–14 Years: A Stratified Randomized Controlled Trial
Ethics reference	Babeș-Bolyai University Ethics Subcommittee, Cluj-Napoca; reference 18.231/10.11.2025 (reported by the investigator).
Researcher	Ghejan Horațiu-Dacian, PhD candidate
Testing facility	Gh Kineto Complex, Cluj-Napoca, Romania
Document status	English version 1.2, dated 29 October 2026. Subject to confirmation of the exact consent version and institution-specific details before use.

1. Why are we doing this study?

We want to learn whether a brief virtual reality (VR) movement game affects how quickly children respond to visual signals, how they stand up from a chair, how they balance, and how their muscles and body segments move. We will compare the VR activity with similar exercise performed without a VR headset. This is research, not a medical test or treatment.

We plan to enroll 360 children aged 10–14 years: 120 rhythmic gymnasts, 120 children competing in other sports, and 120 children without organized sports training who meet the study screening criteria. Their athletic backgrounds are not assigned by researchers.

2. What will happen if my child takes part?

Your child will attend one supervised testing visit. The visit includes a short safety review, fitting and checking sensors, practice trials, testing, an assigned three-minute activity, repeat testing, and breaks. The exact appointment duration will be confirmed with the parent or guardian before consent.

- First tests: a computer choice reaction-time task (30 measured responses following practice), standing from a chair five times, and balancing on one leg for three 20-second trials per leg.
- Randomly assigned activity: approximately three minutes of Beat Saber at Easy difficulty on a Meta Quest 3 headset, OR approximately three minutes of supervised movement-based exercise without the headset.
- Second tests: the same computer, chair, and balance assessments, repeated after the assigned activity.

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3. How is my child assigned to an activity?

A computer-generated randomization schedule assigns children to the VR or non-VR group with equal probability (1 in 2) within each athletic-background category. Neither the parent nor the child can select the group. The child will know which activity they perform because only one group wears a headset. Where an independent assessor is available, that assessor will not be told the assignment; children should report any symptoms regardless of assessor masking.

4. What are the sensors?

Six noninvasive devices combining surface electromyography (sEMG) and inertial measurement units (IMUs) will be attached to the skin: one on each calf, one on the front of each thigh, and one on the outer part of each shoulder. The EMG sensors measure electrical activity produced naturally by muscles. The IMUs measure movement of body segments. They do not deliver electrical current to the child. No needles, injections, or blood samples are involved.

Skin may be cleaned and adhesive electrodes or attachments applied. The research team may ask the child to perform brief standardized muscle contractions to obtain reference measurements. Sensors will be worn during selected assessments and assigned activities.

5. What risks or discomforts are possible?

- VR-related dizziness, nausea, eyestrain, headache, visual discomfort, or motion sickness.
- Fatigue, soreness, a stumble, or loss of balance during movement, standing, or balance tasks.
- Temporary skin irritation or discomfort when attaching or removing sensor adhesives.
- Unanticipated symptoms or injury, although the activities are brief and supervised.

6. How will safety be monitored?

A trained adult will supervise activities in a cleared testing area, fit the headset, explain the tasks, and monitor for symptoms. Screening will ask about recent injuries, seizure-related concerns, marked motion sickness, significant vestibular problems, and other conditions that could make participation unsafe. The child may pause or stop at any time. Testing will stop for pain, dizziness, nausea, loss of safe balance, distress, or another safety concern.

If an incident occurs, the team will stop the activity and arrange appropriate first aid or referral under the testing site’s emergency procedures. For a medical emergency in Romania, emergency services can be contacted at 112. Site-specific incident reporting, responsible staff and research-injury arrangements must be confirmed with the family before participation.

7. Are there benefits, payments, or costs?

Your child may receive no direct personal benefit. Study results may help researchers better understand responses to brief VR movement activities. Participation is free of charge. There is no financial payment for participation, and no study-related fees will be charged. Results will not be used to diagnose a health condition or judge sports-team selection.

8. Can we refuse or withdraw?

Participation is voluntary. A parent or legal guardian can refuse permission, and the child can say no or stop at any point, without giving a reason. Refusal or withdrawal will not affect school, routine care, training, or sports-team opportunities. A parent's permission does not override a child's refusal.

You can ask the study team whether information already collected can be deleted. Where data remain identifiable through a secure participant code, withdrawal requests will be considered in accordance with the applicable legal basis and research safeguards. Data already irreversibly anonymized or incorporated into published aggregate results may not be retrievable.

9. What information will be collected?

The research team will record age, other relevant demographic and sports/activity information, safety-screening details, reaction times, sit-to-stand completion times, balance results, EMG/IMU signals, and any symptoms or adverse events. Parent or guardian contact information may be used to arrange the appointment. Study data will be labeled with codes; identifying information and the code key will be held separately with access limited to authorized personnel.

Scientific publications and presentations will report pooled or appropriately de-identified data without naming children. This permission form does not authorize identifiable photographs, videos, publicity, or the public release of identifiable participant data. Those uses would require separate appropriate authorization.

10. What happens to headset and game data?

The VR activity uses a Meta Quest 3 headset and Beat Saber. The platform and software providers may collect or process information about the device, account, game use, or performance under their own privacy notices. The research team will not intentionally enter children's names into gameplay records. Account and privacy settings will be set up to limit unnecessary sharing, and age-appropriate account rules will be followed. In particular, Meta generally requires parent-managed accounts for children aged 10–12. The parent will be informed of the exact account arrangements before the child uses the headset.

Use of the headset or software may involve processing of platform data outside the European Economic Area. Applicable transfer mechanisms and details of the relevant providers will be verified as part of the research site's data protection review. The local research dataset and the platform's account/game data may be governed by different arrangements.

11. Will individual data be shared with other researchers?

Researchers may consider requests to access appropriately de-identified study data after publication. No public release of individual-level data is promised. Any future sharing will depend on a separate institutional decision, relevant consent arrangements, ethical approval and data-protection requirements, and safeguards appropriate for research involving minors.

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12. Privacy information and contacts

Research participation permission and the legal basis for personal-data processing are not necessarily the same. Before using this form, the responsible institution must confirm the study's legal data controller, its Article 6 GDPR legal basis, any applicable Article 9 condition, the retention period or criteria, data recipients, and any international-transfer safeguards.

Study contact	Ghejan Horațiu-Dacian, PhD candidate | Direct phone/email: -757758088/horatiughejan@yahoo.com
Study site	Gh Kineto Complex, Cluj-Napoca, Romania | Full street address and on-site safety contact:Str Marisel nr 17
Ethics committee	Babeș-Bolyai University Ethics Subcommittee, Cluj-Napoca
UBB DPO (if UBB is controller)	dpo@ubbcluj.ro | Babeș-Bolyai University, 1 Mihail Kogălniceanu Street, 400084 Cluj-Napoca, Romania
GDPR legal basis	Article 6 basis and, if applicable, Article 9 conditions
Data retention	Retention period / criteria for identifiable and pseudonymized research records
Data recipients / transfers	Authorized research personnel and approved service providers; confirm precise recipients, Quest/Beat Saber data flows, and transfer safeguards before use.

Depending on the applicable legal basis and restrictions for scientific research, you may have rights to information, access, correction, erasure, restriction of processing, and objection. Contact the controller or its data protection officer to exercise applicable rights. You may lodge a complaint with the Romanian National Supervisory Authority for Personal Data Processing (ANSPDCP), www.dataprotection.ro.

PARENT / LEGAL GUARDIAN PERMISSION · DETACHABLE SIGNATURE PAGE

Parental Permission to Participate

Study protocol: PED-VR-EMG-2026-01 | Ethics reference: 18.231/10.11.2025

Please read each statement and mark the boxes to confirm you understand the study. Signing is voluntary and does not replace your child's own assent.

☐ I have read (or had explained to me) the parent information sheet, including activities, risks, benefits, privacy information, and my child's rights.

☐ I have been given the opportunity to ask questions and received understandable answers.

☐ I understand that my child may refuse to participate or may stop at any time without penalty.

☐ I understand my child may be assigned by chance either to VR exergaming or to non-VR exercise.

☐ I have received a copy of this information sheet or been offered one, and I know whom to contact with study or privacy questions.

My decision (select one)

☐ YES. I give permission for my child to participate in this research study.

☐ NO. I do not give permission for my child to participate in this research study.

Child's full name: _____

Parent / legal guardian full name: _____

Relationship to child: _____

Parent / legal guardian signature: _____

Date (day / month / year): _____

Researcher obtaining permission: _____

Researcher signature: _____ Date: _____

Second guardian signature, if required by the applicable ethics/institutional arrangements:

Name: _____ Signature: _____

Important: Permission from a parent/legal guardian does not replace the child's agreement to take part.

CHILD ASSENT FORM · AGES 10–14

Would You Like to Join Our Movement Study?

This page is for you. You can read it yourself or ask an adult to help. You can ask any question you want. We want to know what YOU think, not just what your parent thinks.

What is the study about?

We are learning how children react, move, and balance after a short movement activity. Some children will play a VR movement game; others will do movements without a headset. This is not a school exam or a sports-team tryout.

What would I do?

- Try a computer game-like test where you press a key when a visual signal appears.
- Stand up from a chair five times and balance on one leg.
- Do one activity for about three minutes: a VR movement game with a headset, OR similar movements without a headset. A computer decides which one.
- Do the computer, chair, and balance tests again.
- Wear six small sensors on your legs and shoulders. They record movement and muscle signals. They do not give shocks, and there are no needles.

Could anything feel uncomfortable?

You could feel tired, dizzy, sick to your stomach, uncomfortable when moving, or a little irritated where a sticker touches your skin. A researcher will be nearby. Tell them right away if something hurts or feels wrong. You can ask for a break or stop.

Do I have to do this?

No. It is your choice. Even if your parent says yes, you can say no. You may also stop later without explaining why. Nobody will punish you, and it will not affect school or your sports team. Your name will not be included in published results.

My decision (please mark one)

☐ YES. I would like to take part.

☐ NO. I do not want to take part.

My name: _____

My signature or mark: _____

Date: _____

Researcher who explained this study: _____

Researcher signature: _____

Researcher note: Explain the study in age-appropriate language, check understanding, and document any refusal or distress regardless of which box has been marked.